

FIGURE 1

# Characteristics of the arp protein

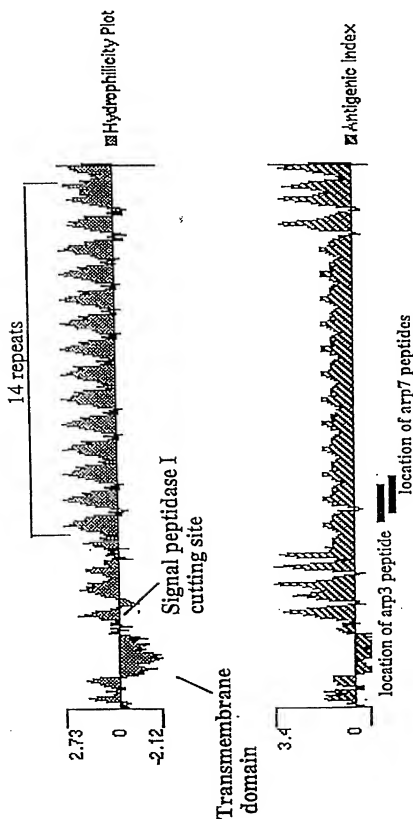


FIGURE 2

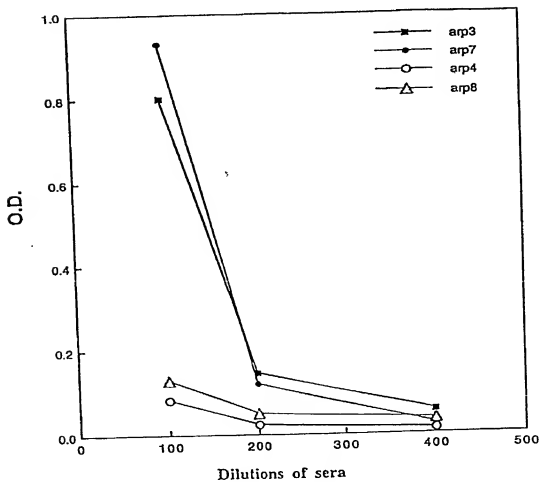
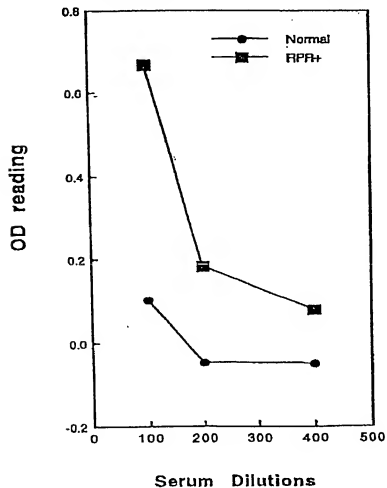


FIGURE 3

**Detection of anti-arp antibody  
in human serum using peptide arp#3**



**FIGURE 4**

GG GGAACCTCCC TTCTTACGCTC CTTCAAGCTAT CCGAGTCAGGA AATTGTGTGT CGCGAGGAAC  
 AGAAAGGAAGC TGGCTCATCG CAGGTAGTAC CCGAGAGGTGC GCCAACGTGA GTCACAACTG  
 GCGAATACTA CGTACAGAAAT GCAAGCTTCG ATGACGCTAT CCAGGTGTGAG AGCAATTGTC  
 ACGCTTACCG GTGACGAATAC CCATCTACCG TGAGCAGGA CATCATCGAA GGTAAAGGTGC  
 GTTCCACCGT ATGCGTCCGCT CCGTGTCAAAA AAGACGAAAGC GCGCGGGTGA CTAGAGAACT  
 TCCAAAGGTT TGATTATCAAG GACGCCCTTCT TGAAAAGGCG CGGATGATCA GGTGCGGCCCT  
 CCTGTATGCC TGCTGACCGT GTGATACGTCG CCGCAAGGGG TGACACAGAG CCGGAAGGAA  
 CGCAAGGCGAA GGGGCGAGCT TAACATTTCT TTTGTTTTTT TGACACAGTA AAGGCGGCGC  
 ATCTCCTTTG AAGGCTTCTT TGCGCGGGGA GCGCGCATGT GCGCAAGCGA GTTACTGTCT  
 ATACGCTCTG ACAGCTCTTT CTGTGGTGCG GCGTTTGAT GTCTCGAGGA CACAAGCGAG  
 AGCTGCACAA TCCGCTCTTC ACGTACCATC CAGCTACCGC GATACGTAAG AGGAGAAGGT  
 GCGACTTCTT TCTAAGAGCGC AAGCTCTATC TTTTGGCGAG TGCCATCGG GTTGAAGCTC ACAGTC

FIGURE 5

MFVRSDMFFPK NTAVEISNLE KNAKAQAVVI GHAGIPGLLV SLAPAAAQL  
GIGVYQA VRV RVRLTLTVRG GSQTSQDGLS LASLPSRVPA RPAQRDPLSS  
PPAGHTVPEY RDTVFIDDP R LVSPLSR

Type I:           1, 2, 4, 7, 8  
Type II:          3, 5, 9, 10, 11, 12  
Type III:         13, 14  
Type IV:         6

EVE DAKPVVEPAS EREGGER  
EVE DAKPVVEPAS EREGGER  
EVE DVPKVVEPAS EREGGER  
EVE DAPKVVEPAS EREGGER  
EVE DVPKVVEPAS EREGGER  
EVE DNPKVVEPAS EREGGER  
EVE DAPKVVEPAS EREGGER  
EVE DAPKVVEPAS EREGGER  
EVE DVPKVVEPAS EREGGER  
EVE DVPKVVEPAS EREGGER  
EVE DVPKVVEPAS EREGGER  
EVE DVPKVVEPAS EREGGER  
EVE DVPKVVEPAS EREGGER  
EVE DVPKVVEPAS EREGGER  
EVE DVPKVVEPAS EREGGER  
EVE DVPGVVEPAS GHEGGER  
EVE DVPGVVEPAS GHEGGER

EVA SOHTKOPSHS VSNSAPNQFR KP

FIGURE 6

*T. pallidum* ssp. *Pertenue* (CDC-2) nucleotide sequence

ATGTTTGTC	GCAGTGACAT	GTTCCCAAA	AACACTGCTG	TGAAATTAG
CAACTTAGAA	AAGAATGCCA	AGGCTCAGGC	AGTGGTTATT	GCGCACGCAG
GGATCCCCGG	TCTTCTAGTT	AGCCTTGAC	CCGCTGCTGC	AGCACAGCTT
GGGATTGGCG	TATACCAAGC	TGTGCGTGT	CGGCTACGTA	CCTTGGGTAC
CGTGCGCGGT	GGGTCTCAAA	CAAGTCAGGA	CGGACTGTCC	CTTGCACTTT
TGCCGTCCCG	TGTGCTGCG	CGCCCGCGC	AGCGTGATCC	TCTGTCAATC
CCGCCGGCAG	GTCACACTGT	ACCGGAATAT	CGCGTACGG	TTATTTCGA
TGACCCGGGT	TTGGTTTCCC	CTTTGTCTCG	TGAGGTGGAG	GACGTGCCGA
AGGTAGTGGA	GCCGGCCTCT	GAGCGTGAGG	GAGGGGAGCG	TGAGGTGGAG
GACGTGCCGA	AGGTAGTGGA	GCCGGCCTCT	GAGCGTGAGG	GAGGGGAGCG
TGAGGTGGAG	GACGTGCCGA	AGGTAGTGGA	GCCGGCCTCT	GAGCGTGAGG
GAGGGGAGCG	TGAGGTGGAG	GACGTGCCGA	AGGTAGTGGA	GCCGGCCTCT
GAGCGGTGAGG	GAGGGGAGCG	TGAGGTGCGT	TCTCAGCATA	CGAAGCAGCC
ATCCCACTCG	GTTTCCAAC	CAGCTCCCAA	TCAGTTTCGG	AAACCTTGA

FIGURE 7

*T. pallidum* ssp. *Pertenuis* (CDC-2) *arp* protein sequence

MFVRSDFPK NTAVEISNLE KNAKAQAVVI GHAGIFGLLV SLAPAAAQQL  
GIGVYQAVRV RVKTLGTVRG GSQTSQDGLS LASLPSRVP RPAQRDPLSS  
PPAGHTVPEY RDTVIFDDPR LVSPLSR  
EVE DVPKVVVEPAS EREGGER  
EVE DVPKVVVEPAS EREGGER  
EVE DVPKVVVEPAS EREGGER  
EVE DVPKVVVEPAS EREGGER  
EVA SQHTKQPSHS VSNSAPNQFR KP

FIGURE 8



*T. pallidum* ssp. *endemicum* (Bosnia) nucleotide sequence

ATGTTTGTC	GCAGTGACAT	GTTCCCAAA	AACACTGCTG	TTGAAATTAG
CAACTTAGAA	AAGAATGCCA	AGGCTAGGC	AGTGTTATT	GGGCACGCAG
GGATCCCGG	TCTTCTAGTT	AGCCTGCAC	CCGCTGCTGC	AGCACAGCTT
GGGATTGGCG	TATACCAAGC	TGTGCGTGA	CCGCTACGTA	CCTTGGGTAC
CGTGGCGGT	GGGTCTCAA	CAAGTCAGGA	CCGACTGTCC	CTTGCACTTT
TGCCGTCCG	TGTCCCTGCG	CGCCCCCGC	AGCGTGATCC	TCTGTATCC
CCGCCGGCAG	GTCACTACTGT	ACCGAATAT	CCGATACGG	TTATTTTGA
TGACCCGGT	TTGTTTCCC	CTTTGTCTCG	TGAGTGGAG	GACGTGCCGA
AGGTAGTGGA	CCCGGCTCT	GAGCGTAGG	GAGGGGAGCG	TGAGTGGAG
GACGTGCCGA	AGGTAGTGGA	CCCGGCTCT	GACCGTAGG	GAGGGAGCG
TGAGGTGAG	GACGTGCCGA	AGGTAGTGA	CCCGGCTCT	GACGTGAGG
GAGGGGAGCG	TGAGGTGAG	GACGTGCCGA	AGGTAGTGA	CCCGGCTCT
GACGTGAGG	GAGGGGAGCG	TGAGGTGAG	GACGTGCCGA	AGGTAGTGA
CCCGGCTCT	GACGTGAGG	GAGGGGAGCG	TGAGGTGAG	GACGTGCCGA
AGGTAGTGA	CCCGGCTCT	GACGTGAGG	GAGGGGAGCG	TGAGGTGAG
GACGTGCCGA	AGGTAGTGA	CCCGGCTCT	GACGTGAGG	GAGGGGAGCG
TGAGGTGAG	GACGTGCCGA	AGGTAGTGA	CCCGGCTCT	GACGTGAGG
GAGGGGAGCG	TGAGGTGAG	GACGTGCCGA	AGGTAGTGA	ATCCACTCG
GTTCCTCACT	CAGCTCCCAA	TCAGTTTCGG	AAACCCCTGA	

FIGURE 9

*T. pallidum* ssp. *endemicum* (Bosnia) *arp* protein sequence

MFVRSDMFFK NTA VEISNLE KNAKAQAVVI GHAGIPGLLV SLAPAAAAQL  
GIGVYQAVRV RVRTLTGTVRG GSQTSQDGLS LASLPSRVPA RPAQRDPLSS  
PPAGHTYPEY RDTVIEDDPR LVSPLSR

EVE DVPKVVVEPAS EREGGER

EVE DVPKVVVEPAS EREGGER

EVE DVPKVVVEPAS EREGGER

EVE DVPKVVVEPAS EREGGER

EVE DVPKVVVEPAS EREGGER

EVE DVPKVVVEPAS EREGGER

EVE DVPKVVVEPAS EREGGER

EVE DVPKVVVEPAS EREGGER

EVA SQHTKQPSHS VSNSAPNQFR KP

FIGURE 10

arp #1	
SEQ ID NO: 7	LV SPL REVEDAPKVVEPAS-
arp #2	
SEQ ID NO: 8	-SR-EVED APKVVEPASEREGG-
arp #3	
SEQ ID NO: 9	-PK VVEPASEREGGEREVEDA-
TP-arp #4	
SEQ ID NO: 10	PKNTAVEISNLE KNAKAQAVV
TP-arp #5	
SEQ ID NO: 11	GHAGIPGLLV SLAPAAAAQLGIGVY
TP-arp #6	
SEQ ID NO: 12	VPA RPAQRDPLSS PPAGHTVPEY RD
TP-arp #7	
SEQ ID NO: 13	VVEPAS EREGGEREVE DVPKV
TP-arp #8	
SEQ ID NO: 14	VVEPASGHEGGEREVA SQHT KQPSHS
TP-arp #9	
SEQ ID NO: 15	EVEDVPKVVEPASEREGGER
TP-arp #10	
SEQ ID NO: 16	EVENVPKVVEPASEREGGER
TP-arp #11	
SEQ ID NO: 17	EVEDAPKVVEPASEREGGER
TP-arp #12	
SEQ ID NO: 18	EVEDVPGVVEPASGHEGGER

FIGURE 11

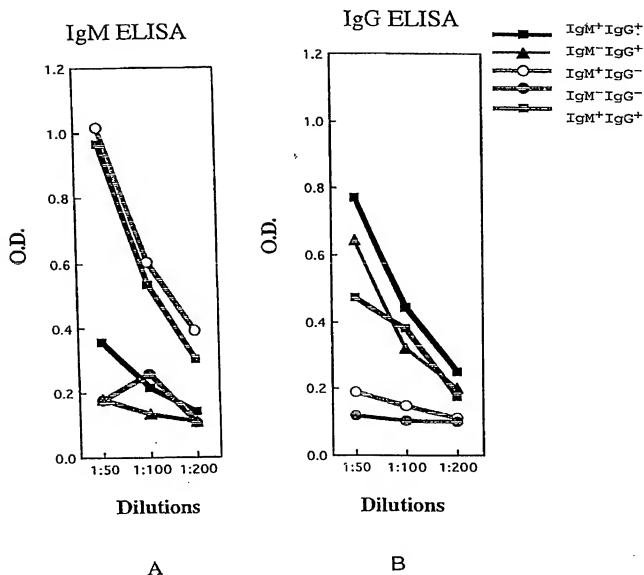


FIGURE 12

*Flowcytometry analysis of arp 9*

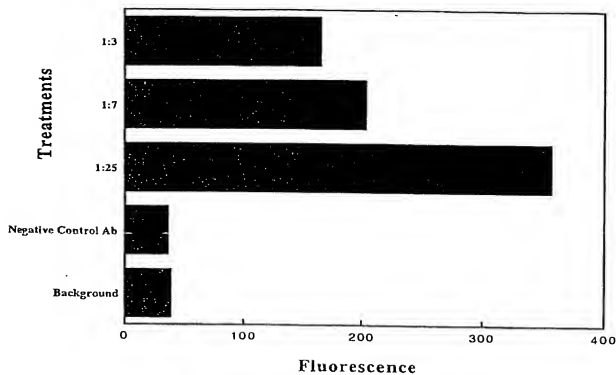


FIGURE 13

FIG. 14

*T. pallidum* subspecies. *pallidum*, Nichols strain

MFVRSDFMPK NTAVEISNLE KNAKAQAVVI GHAGIPGLLV SLAPAAAAQL  
GIGVYQAVRV RVRTLGTVRG GSQTSQDGLS LASLPSR VPA RPAQRDPLSS  
PPAGHTVPEY RDTVIFDDPR LVSPLS

REVEDAPKVVEPASEREGGE  
REVEDAPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE  
REVEDAPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE  
REVEDAPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE  
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REVEDVPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE  
REVEDVPGVVEPASGHEGGE  
REVEDVPGVVEPASGHEGGE

Type I: 1, 2, 4, 7, 8  
Type II: 3, 5, 6, 9, 10, 11, 12  
Type III: 13, 14

REVA SQHTKQPSHS  
VSNSAPNQFRNPEGELPFTLPDLSESEIVVPEEQKGRAHP  
QVIPEGAPRG LQPGEYYVQI AVFHDAIQVQ SIVHRYGVEYPIAVEQDIHE  
GKVRFTVCVG PVQKDERGAV  
LENFQRFQFK DAFLKKAR

FIG. 15

*T. pallidum* subspecies *pertenue*, CDC-2 strain

MFVRS DMFPK NTAVEISNLE KNAQAQAVVI GHAGIPGLLV SLAPAAAAQL  
GIGVYQAVRV RVRTLGTVRG GSQTSQDGLS LASLPSRVPA RPAQRDPLSS  
PPAGHTVPEY RDTVIFDDPR LVSPLS

REVEDVPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE

REVA SQHTKQPSHS VSNSAPNQFR NPEGELPFTL PDLSESEIVV  
PEEQKGRAHP QVIPEGAPRG LQPGEYYVQI AVFHDAIQVQ SIVHRYGVEY  
PIAVEQDIHE GKVRFTVCVG PVQKDERGAV LENFQRFQFK DAFLKKAR

FIG. 16

*T. pallidum* subspecies *endemicum*, Bosnia strain

MFVRS DMFPK NTAVEISNLE KNAKAQAVVI GHAGIPGLLV SLAPAAAAQL  
GIGVYQAVRV RVRTLTGTVRG GSQTSQDGLS LASLPSRVPA RPAQRDPLSS  
PPAGHTVPEY RDTVIFDDPR LVSPLS

REVEDVPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE

REVA SQHTKQPSHSVNSAPNQFR NPEGELPFTL PDLSESEIVV  
PEEQKGRAHP  
QVIPEGAPRGLQPGEYYVQI AVFHDAIQVQ SIVHRYGVEY PIAVEQDIHE  
GKVRFTVCVGPVQKDERGAV LENFQRFQFK DAFLKKAR



FIG. 17

*T. pallidum* subspecies. *pertenue*, CDC-1 strain

MFVRS DMFPK NTAVEISNLE KNAKAQAVVI GHAGIPGLLV SLAPAAAAQL  
GIGVYQAVRV RVRTLTGTVRG GSQTSQDGLS LASLPSRVPA RPAQRDPLSS  
PPAGHTVPEY RDTVIFDDPR LVSPLSREGGE

REVEDVPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE

REVASQHTK QPSHSVSNSA PNQFRNPEGE LPFTLPDLSE SEIVVP EEQK  
GRAHPQVIPE GAPRGLQPE YYVQIAVFHD AIQVQSIVHR YGVEYPIAVE  
QDIHEGKVRF TVCVGPVQKD ERGAVLENFQ RFGFKDAFLK KAR